

Appl. No. 10/605,094
Amdt. dated July 31, 2006
Reply to Office action of May 30, 2006

REMARKS

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, US Patent 6,459,665

5 Regarding claim 1, applicant has amended the limitations presented in claim 1 to more clearly define and claim the subject matter of the present invention. All amendments are detailed and fully supported in the original specification, with no new or additional subject matter introduced.

10 Specifically, the limitation describing the band-pass filter "for providing phase-lag compensation" is supported in paragraph [29] of the specification stating "the band-pass filter 64 is in charge with a compensation process". Additionally, the Bode plot shown in Fig. 7 of the compensator circuit clearly implies that phase-lag compensation must be performed by the band-pass filter 64 in order for low frequency gain, and steady-state results to occur.

15 In view of the amendments made to claim 1, applicant asserts that Chu does not teach a band-pass filter for providing phase-lag compensation, as disclosed in claim 1. Chu teaches that "the bandpass filter 34 amplifies signal near the rotating frequency" and "the bandpass filter 34 is employed to process high-speed rotating frequency so that rotating frequency of the motor is magnified" (Col 4 lines 30-35). In fact, phase-lag compensation is only achieved in the teachings of Chu through the "a lag compensator for signal
20 compensation" (Col 3 line 32).

25 Additionally, applicant points out that it is not obvious to simply omit the phase-lag compensator of Chu to arrive at the teachings of the present invention. In fact, MPEP 2144.04II. B. discloses that omission of an element with retention of the element's function is an indicia of unobviousness. While it may appear that the only difference between the two teachings is the omission of the phase-lag compensator in Chu, applicant asserts that overall functionality is still retained through modification of the band-pass

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filter, which is not taught by Chu. Applicant asserts that phase-lag compensation is performed by the band-pass filter of the present invention, which is specially tuned to provide low frequency gain and achieve the overall transfer function presented in the Bode plot of Fig. 7. Chu on the other hand, simply relies on the phase lag-compensator to
5 achieve phase-lag compensation.

For at least the above-described reasons, applicant asserts that it is not obvious to omit the phase-lag compensator in the teachings of Chu to arrive at the teachings of the present invention. This is because functionality of the entire compensation circuit is still retained in
10 spite of the absence of a phase-lag compensator, due to modification of the band-pass filter. Applicant respectfully requests reconsideration for the allowance of newly amended claim 1.

Regarding claims 2-3, applicant points out that they are dependant on currently amended claim 1. Therefore, should an allowance be made for independent claim 1, applicant asserts
15 that allowances should similarly be made for claims 2-3 as being dependant on claim 1.

Regarding claims 4-8, applicant points out that they are dependant on intervening claim 3, which is in turn dependant on newly amended claim 1. Therefore, should an allowance be made for claim 3, applicant asserts that allowances should similarly be made for claims 4-8 as
20 being dependant on intervening claim 3

Applicant points out that claim 9 is a method claim analogous to the compensator circuit of claim 1, and hence amended accordingly. Please refer to remarks made for claim 1 for further details concerning claim 9.

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Regarding claim 10, applicant points out that this claim is dependant on newly amended method claim 9. Should an allowance be made for independent claim 9, applicant points out that an allowance should also be made for claim 10, as is dependant on claim 9.

5 New Claims 11-12

New claims 11-12 are additionally added to further describe limitations pertaining to the present invention. New claims are fully supported in the original specification with no new or additional subject matter introduced.

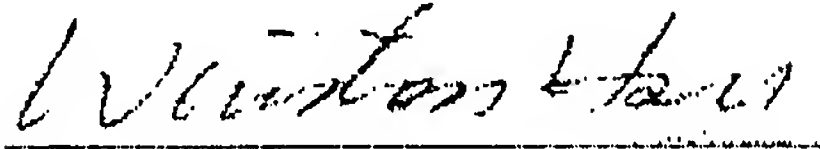
10 Claim 11 describes the band-pass filter of the compensator circuit for providing phase-lag compensation through amplifying the rotating frequency error signal. This is supported in paragraph [0026] of the specification stating "since the phase-lag compensator can only provide a low frequency gain...the compensator circuit 56 comprises the band-pass filter 64 instead of a phase-lag compensator " and paragraph [0027] stating "A filtered signal amplified by the band-pass filter".

15 Claim 12 describes the band-pass filter operating in a frequency range outside of an operational range of the phase-lead compensator. This is supported in paragraph [0029] of the specification stating "the band-pass filter 64 is in charge with a compensation process... the phase-lead compensator 62 can therefore concentrate on designing the bandwidth, without worrying that the bandwidth will be overlapped with the bandwidth
20 of the band-pass filter 64". This is in contrast to the teachings of Chu, who does not consider the potential for frequency overlap between band-pass filter and the phase-lead compensator.

Consideration for the allowance of new claims 11 and 12 is respectfully requested.

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Sincerely yours,



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- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)